

TOOLING FOR ARTICLES WITH STRUCTURED SURFACES

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Abstract of the Disclosure

10 Tool rolls and methods of using the tool rolls to manufacture articles with one or more structured surfaces are disclosed. The tool rolls include an outer surface that, when used in connection with materials of the proper viscosity or formability, can form a structured surface on an article. Because the tools are manufactured in roll-form, they can be advantageously used in continuous manufacturing processes. Alternatively, discrete articles may be processed using the tool rolls. The tool rolls are constructed of a cylindrical base roll and are wrapped with one or more continuous wires in a helical pattern. The wires are used, in essence, to form a structured surface on the tool roll that is the negative of the structured surface to be formed on the articles processed using the tool roll. One of the wires wound around the base roll may include a plurality of voids formed therein that, when wound in helical coils about the base roll, form a plurality of mold cavities on the outer surface of the tool roll. Alternatively, the helical pattern of one or more wound wires may be used to form a continuous helical structured surface, e.g., a helical groove or grooves.

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